

## DanCut: top-quality knives for long product rolling mills, with all Danieli design and process know-how, and manufactured using the latest technological solutions.

Danieli's target is to supply the best technical and economical solution for customer's specific shearing application. For this purpose Danieli has developed three different blade materials:

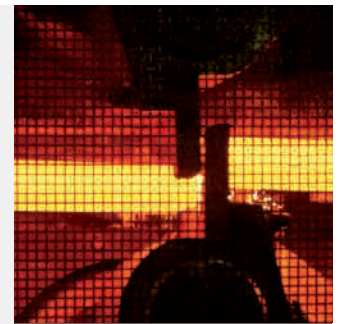
- > **DanCut 510** (hot cutting)
- > **DanCut 550** (cold cutting after QTB)
- > **DanCut 345** (cold cut-to-length)

Materials and knife shape are chosen by Danieli engineers according to specific shearing application to achieve the best

performances as of lifetime and reliability. All DanCut production cycles are carried out in compliance with Danieli Quality Control Plan QCP: from engineering and knives design, through the supply of materials, up to manufacturing with an accurate programming and control of CNC machining cycles and heat treatments.

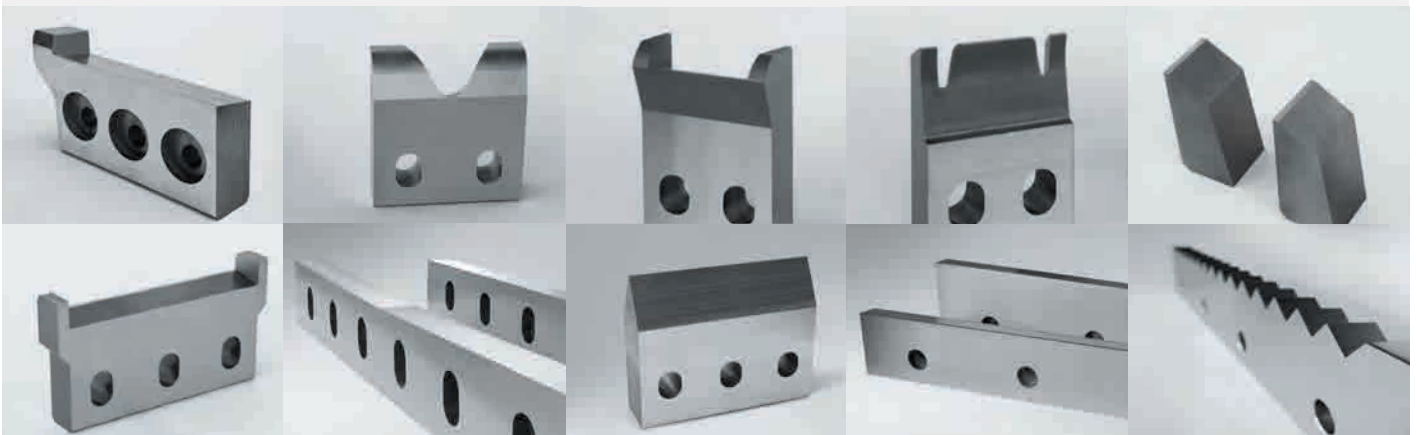
Danieli Service provides its knives with extensive information and assistance for proper setting -up, grinding, and refurbishment services, so as to maximize their lifetime.

DanCut knives are designed to ensure as many multiple grinding operations as possible. Thanks to refurbishing operations and the supply of customized shims, our customer will always have new knives with the same cutting quality and a longer total lifetime. The regrinding process is integrated with a feedback and monitoring system for the total traceability of each DanCut knife supplied.



**DANCUT**  
>Danieli knives  
for long product  
rolling mills<

**DAN-CUT**



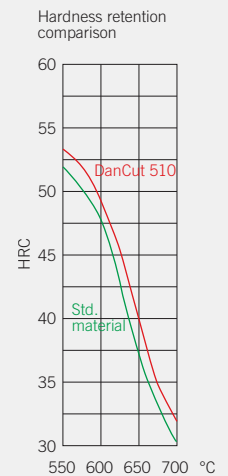


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### DanCut 510 Extreme wear resistant material for hot cutting application

Cause of wear	DanCut solution
Abrasion	> High content of carbide-forming elements such as Cr, Mo, V.
Softening by overheating	> High thermal conductivity and presence of alloying elements improving the retention of hardness.
Permanent deformation	> High resistance to material overheating due to specific electro-slag remelting of blades.

Knives material	Carbide forming elements (*)	Retention of hardness
Standard hot shearing steel grade	6.7% max	Standard hot shearing material (—).
DanCut510	7.5% (DanCut 510 reaches +11% of carbides with respect to standard steels).  (* in % of total chemical composition.	DanCut510 (—) maintains approx. 2 HRC points more than standard materials if overheated above its tempering temperature.



### DanCut 550 Revolutionary material for rebar shearing after quenching boxes (patented)

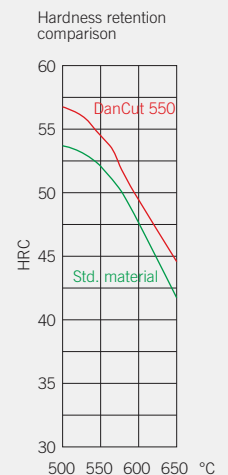
DanCut550 is an unique material with patented chemical composition and manufacturing process that combines all characteristics of tool steels for hot and cold shearing, so as to properly shear

rebars during tempering. DanCut 550 can shear cold martensitic rebar surfaces with still hot austenitic rebar cores, without any plastic deformation or chip-off of cutting edge.

Cause of wear	DanCut solution
Abrasion	> High content of carbide-forming elements.
Cutting edge chip-off	> High impact strength thanks to specific secondary metallurgy processes and increased small carbide-forming elements.
Permanent deformation	> High mechanical properties such as hardness and compressive strength.
Contact area softening	> Very high thermal conductivity and large amount of alloying elements improving the retention of hardness.

Knives material	Hardness	Compressive strength	Impact strength (*)	Retention of hardness
Hot shearing steel grades	48-52 HRC	2029 MPa	10 J	Standard hot shearing material (—)
Cold shearing steel grade	52-56 HRC	2484 MPa	7 J	—
DanCut 550	56-58 HRC	2610 MPa	13 J	DanCut550 (—) keeps a better hardness than standard hot-shearing tool steels if overheated above its tempering temperature.

(\* performed with Charpy-V test)



### DanCut 345 Outstanding performances material for cold cut-to-length shearing

Cause of wear	DanCut solution
Cracks	> presence of 4% Ni in the alloy that improves the impact strength (toughness) without reducing the blade hardness.
Jagged cutting edge	> reduced amount of big-dimension carbide forming elements that act as point of concentration of tensions.
Permanent deformation	> High mechanical properties (in particular yield strength) thank to the balance of Cr and Mo.

Knives material	Toughness	Hardness
Standard steel grade	50-54 HRC	10 KV (J)
DanCut 345	54-56 HRC	12 KV (J)

Thank to its chemical composition DanCut345 reaches hardness values higher than other steel grades. Moreover, it has a stronger impact strength (toughness).